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ABSTRACT

To address the need to understand the extent and types of teacher use of computers and the Internet, as well as teachers' perceptions of their own preparedness to use these tools in their classes, a National Center for Education Statistics (NCES) survey was commissioned. The survey found that 99% of full-time regular public school teachers reported they had access to computers or the Internet somewhere in their schools. This Stats in Brief focuses on those teachers. Thirty-nine percent indicated that they used computers or the Internet "a lot" to create instructional materials, and 34% reported using computers "a lot" for administrative record keeping. Less than 10% reported using computers or the Internet to access model lesson plans or to access research and best practices. Newer teachers were more likely to use computers or the Internet. Teachers' use of computers or the Internet at school varied for some types of uses by school poverty level. Sixty-six percent reported using computers or the Internet for instruction during class time. Forty-one percent reported assigning students work that involved computer applications such as word processing or spreadsheets to a moderate or large extent; 31% reported assigning practice drills, and 30% reported assigning research using the Internet to a moderate or large extent. Elementary school teachers were more likely than secondary school teachers to assign students practice drills using computers and to have their students use computers or the Internet to solve problems; however, secondary school teachers were more likely to assign research using the Internet. Teachers in the lowest poverty schools were more likely to report assigning student work involving computers to a moderate or large extent than teachers in the highest poverty schools. Teachers with professional development in the use of computers and the Internet over the last three years were more likely to assign students various types of computer- and Internet-based work. Twenty-three percent reported feeling well-prepared to use computers or the Internet in the classroom, and an additional 10% reported feeling very well prepared. Teachers with fewer years of experience and those with more hours

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of professional development felt better prepared to use computers and the Internet for classroom instruction. (AEF)

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NATIONAL CENTER FOR EDUCATION STATISTICS

Stats in Brief

TEACHER USE OF COMPUTERS AND THE INTERNET IN PUBLIC SCHOOLS

April 2000

Since 1994, the National Center for Education Statistics (NCES) has documented the large increase in access to computers and the Internet in the nation's public elementary and secondary schools (U.S. Department of Education 2000). These increases have led to a need to understand the extent and types of teacher use of computers and the Internet, as well as teachers' perceptions of their own preparedness to use these tools in their classes. To address these critical information needs, NCES commissioned a survey using the Fast Response Survey System (FRSS) that was conducted in the spring of 1999. The survey found that 99 percent of full-time regular public school teachers reported they had access to computers or the Internet somewhere in their schools. This Stats in Brief focuses on those teachers.

How do teachers use computers and the Internet at school?

Teachers were asked the degree to which they used computers or the Internet to prepare for and manage their classes. Thirty-nine percent of public school teachers with access to computers or the Internet in their classroom or elsewhere indicated they used computers or the Internet "a lot" to create instructional materials, and 34 percent reported using computers "a lot" for administrative record keeping (table 1). Less than 10 percent of teachers reported using computers or the Internet to access model lesson plans or to access research and best practices.

Newer teachers were more likely to use computers or the Internet to accomplish various teaching objectives. Teachers with 9 or fewer years of teaching experience were more likely than teachers with 20 or more years of experience to report using computers or the Internet "a lot" to communicate with colleagues (30 percent with 3 or fewer years, 30 percent with 4 to 9 years, versus 19 percent with 20 or more years) and gather information for lessons (21 and 22 percent versus 11 percent for the same three groups). Also, teachers with 4 to 9 years of teaching experience were more likely to report they used computers or the Internet "a lot" to create instructional materials (47 percent) than were teachers with 20 or more years of experience (35 percent).

Teachers' use of computers or the Internet at school varied for some types of uses by school poverty level (the percentage of students in the school eligible for free or reduced-price lunches). Teachers in schools with a school poverty level of less than 11 percent were more likely to use com-

Table 1.—Percent of teachers indicating they use computers or the Internet "a lot" at school to accomplish various objectives, by school and teacher characteristics: 1999

School and teacher characteristics	Create instructional materials	Administrative record-keeping	Communicate with colleagues	Gather information for planning lessons	Multimedia classroom presentations	Access research and best practices for teaching	Communicate with parents or students	Access model lesson plans
All public school teachers with access to computers or the Internet at school	**39**	**34**	**23**	**16**	**8**	**7**	**7**	**6**
Teaching experience								
3 or fewer years	43	38	30	21	10	11	6	11
4–9 years	47	35	30	22	8	10	10	8
10–19 years	38	35	22	14	9	7	6	6
20 or more years	35	30	19	11	6	5	5	5
School instructional level								
Elementary school	37	29	25	14	7	7	7	6
Secondary school	44	47	21	19	8	8	6	7
Percent of students in school eligible for free or reduced-price school lunch								
Less than 11 percent	52	43	31	20	11	9	9	8
11–30 percent	42	37	27	19	7	9	8	8
31–49 percent	35	36	23	13	6	5	6	4
50–70 percent	35	30	15	10	8	5	4	4
71 percent or more	32	24	19	15	8	7	5	8

NOTE: Less than 1 percent of all public school teachers reported no computers or Internet were available to them anywhere in their school. These teachers were not included in the estimates presented in this table.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Public School Teachers Use of Computers and the Internet," FRSS 70, 1999.

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puters or the Internet "a lot" for creating instructional materials (52 percent) than teachers in schools with a school poverty level of 71 percent or more (32 percent). This pattern also held for teachers who used computers for administrative record keeping (43 versus 24 percent for the same groups).

How do teachers direct their students to use computers and the Internet?

Sixty-six percent of public school teachers reported using computers or the Internet for instruction during class time (table 2). Forty-one percent of teachers reported assigning students work that involved computer applications such as word processing and spreadsheets to a moderate or large extent; 31 percent of teachers reported assigning practice drills and 30 percent reported assigning research using the Internet to a moderate or large extent (table 2).

The ways teachers direct students to use computers or the Internet varied by instructional level, main teaching assignment, and the school poverty level. Elementary school teachers were more likely than secondary school teachers to assign students practice drills using computers (39 versus 12 percent) and to have their students use computers or the Internet to solve problems (31 versus 20 percent). Secondary school teachers, however, were more likely to assign research using the Internet (41 versus 25 percent). Teachers in the lowest poverty schools were more likely to report assigning students work involving computer applications, research using CD-ROMs, and research using the Internet to a moderate or large extent than teachers in the highest poverty schools (table 2).

Teachers with more professional development in the use of computers and the Internet over the last 3 years were more likely to assign students various types of work involving computers or the Internet. For example, teachers with more than 32 hours of professional development were more likely to assign problem solving (41 percent) than were teachers with 0 hours (14 percent) or those with 1 to 8 hours (24 percent), graphical presentations (31 compared with 10 and 16 percent for the same groups), and demonstrations or simulations (29 compared with 8 and 13 percent for the same groups).

How well prepared do teachers feel they are to use computers and the Internet in their teaching?

When teachers were asked to focus specifically on the variety of potential uses of computers or the Internet in the classroom, 23 percent of public school teachers reported feeling well prepared and an additional 10 percent reported feeling very well prepared to use computers and the Internet in their teaching (table 3).[1] Teachers who reported assigning students work that involved corresponding with experts, authors, or students from other schools were more likely to

Table 2.—Percent of teachers reporting using computers or the Internet for instruction and the percent assigning various uses to students to a moderate or large extent, by school and teacher characteristics: 1999

School and teacher characteristics	Teacher uses for classroom instruction	Teacher assigns to a moderate or large extent								
		Computer applications[1]	Practice drills	Research using the Internet	Solve problems and analyze data	Research using CD-ROM	Produce multimedia reports/ projects	Graphical presentations of materials	Demonstrations/ simulations	Correspond with others[2]
All public school teachers with access to computers or the Internet at school	**66**	**41**	**31**	**30**	**27**	**27**	**24**	**19**	**17**	**7**
School instructional level										
Elementary school	68	41	39	25	31	27	22	17	15	7
Secondary school	60	42	12	41	20	27	27	23	21	7
Percent of students in school eligible for free or reduced-price school lunch										
Less than 11 percent	71	55	26	39	25	32	29	26	22	7
11–30 percent	65	45	29	35	29	27	23	18	16	9
31–49 percent	65	39	33	29	26	30	23	16	17	11
50–70 percent	62	33	33	25	27	24	25	19	13	5
71 percent or more	64	31	35	18	27	19	22	19	16	3
Hours of professional development										
0 hours	41	21	19	20	14	16	16	10	8	4
1–8 hours	56	36	26	28	24	24	20	16	13	7
9–32 hours	72	47	35	32	30	31	26	21	19	8
More than 32 hours	82	55	43	42	41	34	37	31	29	9

[1] Use computer applications such as word processing, spreadsheets, etc.

[2] Correspond with experts, authors, students from other schools, etc., via e-mail or internet.

NOTE: Less than 1 percent of all public school teachers reported no computers or Internet access were available to them anywhere in their school. These teachers were not included in the estimates presented in this table.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Public School Teachers Use of Computers and the Internet," FRSS 70, 1999.

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Table 3.—Percentage distribution of teachers with access to computers or the Internet at school according to the level of preparedness they feel to use computers and the Internet by school and teacher characteristics: 1999

School and teacher characteristics	Not at all prepared	Somewhat prepared	Well prepared	Very well prepared
All public school teachers with access to computers or the Internet at school	**13**	**53**	**23**	**10**
School instructional level				
Elementary school	12	55	23	10
Secondary school	15	50	23	12
Percent of students eligible for free or reduced-price school lunch				
Less than 11 percent	10	53	25	12
11–30 percent	13	52	25	10
31–49 percent	14	51	24	10
50–70 percent	16	58	16	10
71 percent or more	13	55	22	10
Teaching experience				
3 or fewer years	10	46	31	13
4–9 years	10	49	28	13
10–19 years	14	55	21	10
20 or more years	16	58	19	8
Hours of professional development				
0 hours	32	46	15	6
1–8 hours	19	55	20	6
9–32 hours	4	61	25	10
More than 32 hours	1	32	37	29
Type of work assigned to a moderate or large extent				
Use computer applications such as word processing, spreadsheets, etc.	4	45	33	19
Practice drills	4	54	27	14
Research using the Internet	4	43	34	19
Solve problems/analyze data	3	49	29	19
Research using CD-ROM	3	42	33	21
Produce multimedia reports/projects	5	38	33	24
Graphical presentation of materials	4	38	35	22
Demonstrations/simulations	2	34	37	28
Correspond with experts, authors, students from other schools, etc., via e-mail or Internet	4	32	34	30

NOTE: Less than 1 percent of all public school teachers reported no computers or the Internet were available to them anywhere in their school. These teachers were not included in the estimates presented in this table. Percents may not add to 100 because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Public School Teachers Use of Computers and the Internet," FRSS 70, 1999.

report feeling very well prepared to use computers and the Internet than teachers who assigned practice drills to a moderate or large extent (30 versus 14 percent).

Teachers with fewer years of experience and those with more hours of professional development felt better prepared to use computers and the Internet for classroom instruction. Teachers with 3 or fewer years of teaching experience were more likely to feel well prepared to use computers and the Internet than teachers with 20 or more years of experience (31 versus 19 percent). Teachers with more than 32 hours of professional development in the use of computers and the Internet within the last 3 years were more likely to report feeling very well prepared than teachers who had received 0 to 32 hours of formal professional development (29 versus 6 to 10 percent). Teachers without recent professional development were more likely to report feeling not at all prepared to use computers and the Internet in classrooms than teachers who had received one or more hours of professional development.

A more extensive discussion of the results of this survey will be available in a report forthcoming in Summer 2000. The report will focus on the relationships between school characteristics such as school level, school poverty level, school location, and school size and uses of computers and the Internet.

[1] These figures differ somewhat from those presented in a previous report (U.S. Department of Education 1999) containing similar information. These differences are discussed in the report to be released Summer 2000.

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The **Stats in Brief** series presents information on education topics of current interest. All estimates shown are based on samples and are subject to sampling variability. All differences are statistically significant at the .05 level. In the design, conduct, and data processing of NCES surveys, efforts are made to minimize the effects of nonsampling errors, such as item nonresponse, measurement error, data processing error, or other systematic error.

This **Stats in Brief** was prepared by Cassandra Rowand of Westat. This **Stats in Brief** was desktopped by Allison Pinckney and Carol Rohr of PCCI. For further information or additional copies, contact Edith McArthur at 202–502–7393 or e-mail Edith_McArthur@ed.gov. NCES publications are also available on the Internet at http://nces.ed.gov.

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